WE CLAIM:

1. A method for using multiple network addresses for interprocess communication through a common physical layer, comprising:

creating a first interprocess communication data structure associated with a first network address on a first network device;

establishing a first communication between the first network device and a second network device using the first interprocess communication data structure and the first network address, wherein the first communication passes through the common physical layer for the first network device;

creating a second interprocess communication data structure associated with a second network address on the first network device, wherein the second network address is different from the first network address; and

establishing a second communication between the first network device and a third network device using the second interprocess communication data structure and the second network address, wherein the second communication passes through the common physical layer for the first network device.

2. A computer readable medium having stored therein instructions for causing a central processing unit to execute the method of Claim 1.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

3. The method of Claim 1 wherein the first interprocess communication data structure is a first socket comprising:

a first socket descriptor with which a first process on the first network device accesses the first interprocess communication data structure; and

the first network address.

4. The method of Claim 1 wherein the second interprocess communication data structure is a second socket comprising:

a second socket descriptor with which a second process on the first network device accesses the second interprocess communication data structure; and

the second network address.

5. The method of Claim 1 wherein the first network address and the second network address are Internet Protocol addresses.

6. The method of Claim 1 wherein the step of creating the first or second interprocess communication data structure includes calling a reentrant socket networking function that allows multiple network addresses to be allocated.

7. The method of Claim 1 wherein the step of creating the first or second interprocess communication data structure includes calling a reentrant bind socket networking function that allows multiple network addresses to be allocated.

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HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

8. The method of Claim 1 wherein the step of establishing the first or second communication includes calling a reentrant connect socket networking function that allows multiple network addresses to be allocated.

9. A computer readable medium having stored therein a library of reentrant functions generally available to, and callable by, a plurality of client applications on a host computer, the computer readable medium comprising:

a first reentrant networking function for creating a socket that is associated with a new network address, wherein the first function allocates a memory structure in the host computer for the socket and creates a new network layer interface for the new network address, and wherein the first reentrant networking function allows multiple network addresses to be used with a common physical layer;

a second reentrant networking function for binding the socket to the new network address, wherein the second reentrant networking function allows multiple network addresses to be used with the common physical layer;

a third reentrant networking function for connecting the socket to a target socket on another host computer, wherein the third function binds the socket to the new network address, wherein the third reentrant networking function allows multiple network addresses to be used with the common physical layer;

a fourth reentrant networking function for determining the new network address associated with the socket, wherein the fourth reentrant networking function allows multiple network addresses to be used with the common physical layer; and

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

a fifth reentrant networking function for closing the socket, wherein the fifth reentrant networking function allows multiple network addresses to be used with the common physical layer.

10. A computer readable medium having stored therein an application programming interface having a plurality of function interfaces for networking functions stored in an external library generally available to, and callable by, a plurality of client applications on a host computer, the computer readable medium comprising:

a first function interface for calling a first networking function for creating a socket that is associated with a new network address, wherein the first networking function allocates a memory structure in the host computer for the socket and creates a new network layer interface for the new network address, and wherein the first function interface allows multiple network addresses to be used over a common physical layer;

a second function interface for calling a second networking function for binding the socket to the new network address, wherein the second function interface allows multiple network addresses to be used over the common physical layer;

a third function interface for calling a third networking function for connecting the socket to a target socket on another host computer, wherein the third function binds the socket to the new network address, and wherein the third function interface allows multiple network addresses to be used over the common physical layer;

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HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

a fourth function interface for calling a fourth networking function for determining the new network address associated with the socket, wherein the fourth function interface allows multiple network addresses to be used over the common physical layer; and

a fifth function interface for calling a fifth reentrant networking function for closing the socket, wherein the fifth function interface allows multiple network addresses to be used over the common physical layer.

11. A computer readable medium having stored therein a reentrant networking function for creating a socket, generally available to, and callable by, a plurality of applications on a host computer, comprising:

associating a descriptor with the socket, wherein the descriptor identifies the socket to other reentrant network functions, and wherein the socket is to be assigned a new network address;

storing the descriptor in a protocol stack for the host computer; and

instructing the host computer to allocate a memory structure for the socket.

12. The computer readable medium of Claim 11 wherein the storing step comprises:

ascertaining the new network address in the protocol stack for the host computer;

associating the descriptor with the new network address; and

storing the descriptor and the new network address in the protocol stack of the host computer.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

13. The computer readable medium of Claim 12 wherein the ascertaining step comprises:

requesting a dynamically assigned network address from an address server; and

receiving the new network address from the address server in response.

14. The computer readable medium of Claim 12 wherein the ascertaining step comprises:

selecting the new network address from a pool of network addresses on the host computer.

15. The computer readable medium of Claim 11 wherein the instructing step further comprises:

returning a value for the descriptor to an application that has called the reentrant networking function.

16. The computer readable medium of Claim 11 wherein the new network address is an Internet Protocol address.

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HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

17. A computer readable medium having stored therein a reentrant networking function for binding a socket, generally available to, and callable by, a plurality of applications on a host computer, comprising:

identifying the socket from a descriptor that is passed from an application that has called the reentrant networking function;

determining that the descriptor is associated with a new network address in a protocol stack of the host computer; and

associating the new network address with the socket.

18. The computer readable medium of Claim 17 wherein the identifying step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with the socket.

19. The computer readable medium of Claim 17 wherein the determining step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with a stored network address; and

equating the new network address with the stored network address.

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HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

20. The computer readable medium of Claim 17 wherein the determining step comprises:

ascertaining the new network address in the protocol stack for the host computer;

associating the descriptor with the new network address; and

storing the descriptor and the new network address in the protocol stack of the host computer.

21. The computer readable medium of Claim 20 wherein the ascertaining step comprises:

requesting a dynamically assigned network address from an address server; and

receiving the new network address from the address server in response.

22. The computer readable medium of Claim 20 wherein the ascertaining step comprises:

selecting the new network address from a pool of network addresses on the host computer.

23. The computer readable medium of Claim 20 wherein the associating step further comprises:

returning a value for the new network address to the application that has called the reentrant networking function.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

24. The computer readable medium of Claim 17 wherein the new network address is an Internet Protocol address.

25. A computer readable medium having stored therein a reentrant networking function for connecting a host socket to a target socket, generally available to, and callable by, a plurality of applications on a host computer, comprising:

identifying the host socket from a descriptor that is passed from an application that has called the reentrant networking function;

determining that the descriptor is associated with a new network address in a protocol stack of the host computer;

associating the new network address with the host socket; and

allocating a memory structure for communication between the host socket and the target socket.

26. The computer readable medium of Claim 25 wherein the identifying step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with the host socket.

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HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

27. The computer readable medium of Claim 25 wherein the determining step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with a stored network address; and

equating the new network address with the stored network address.

28. The computer readable medium of Claim 25 wherein the determining step comprises:

ascertaining the new network address in the protocol stack for the host computer;

associating the descriptor with the new network address; and

storing the descriptor and the new network address in the protocol stack of the host computer.

29. The computer readable medium of Claim 28 wherein the ascertaining step comprises:

requesting a dynamically assigned network address from an address server; and

receiving the new network address from the address server in response.

30. The computer readable medium of Claim 28 wherein the ascertaining step comprises:

selecting the new network address from a pool of network addresses on the host computer.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

31. The computer readable medium of Claim 25 wherein the new network address is an Internet Protocol address.

32. A computer readable medium having stored therein a reentrant networking function for determining a new network address associated with a socket, generally available to, and callable by, a plurality of applications on a host computer, comprising:

identifying the socket from a descriptor that is passed from an application that has called the reentrant networking function;

determining that the descriptor is associated with a new network address in a protocol stack of the host computer; and

returning a value for the new network address to the application that has called the reentrant networking function.

33. The computer readable medium of Claim 32 wherein the identifying step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with the socket.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

34. The computer readable medium of Claim 32 wherein the determining step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with a stored network address; and

equating the new network address with the stored network address.

35. The computer readable medium of Claim 32 wherein the new network address is an Internet Protocol address.

36. A computer readable medium having stored therein a reentrant networking function for closing a socket, generally available to, and callable by, a plurality of applications on a host computer, comprising:

identifying the socket from a descriptor that is passed from an application that has called the reentrant networking function;

determining that the descriptor is associated with a new network address in a protocol stack of the host computer; and

de-allocating the new network address.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

37. The computer readable medium of Claim 36 wherein the de-allocating step comprises:

matching the descriptor to a stored descriptor value in the protocol stack, wherein the stored descriptor value is associated with the new network address; and

deleting the stored descriptor value from the protocol stack.

38. The computer readable medium of Claim 37 further comprising:

deleting the new network address from the protocol stack.

39. The computer readable medium of Claim 36 wherein the new network address is an Internet Protocol address.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001